

Customer No.: 31561
Application No: 10/064,095
Docket NO.:9068-US-PA

REMARKS

Present Status of the Application

This is a full and timely response to the outstanding non-final Office Action mailed on June 21, 2004. The Office Action has rejected claims 1-7 under 35 U.S.C. 112, second paragraph and under 35 U.S.C. 103(a) as being unpatentable over He et al. (USP 6,649,950), Chen et al. (USP 6,392,263) and Rhode (USP 6,740,915), all considered together.

Claims 1-7 remain pending of which claims 1, 3-7 and various parts of the specification have been amended to more accurately describe the invention. Claim 16 has been newly added. It is believed that no new matter is added by way of these amendments made to the claims or otherwise to the application.

After carefully considering the remarks set forth in this Office Action and the cited references, it is however strongly believed that the cited references are deficient to adequately teach the claimed features as recited in the presently pending claims. The reasons that motivate the above position of the Applicant are discussed in detail hereafter, upon which reconsideration of the claims is most earnestly solicited.

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Discussion of Amendments to the Specification

The specification has been amended to correct various translation and editorial errors. Applicant respectfully submits that all amendments are supported by the original disclosure and drawings, and no new matter is added to the application.

Discussion of Office Action Rejections

The Office Action rejected claims 1-7 under 35 U.S.C. 112, 2nd paragraph.

Specifically, the Office Action rejected claim 1 because the acronym 'CMOS' is ambiguous for a claim, and the scope of 'buried contact' relative to 'contact' is unclear absent claiming the structure that buries the contact. The office Action further rejects claim 4 because the conductivity type of the source region does not have a clear antecedent. In amending the claims, the Examiner's various comments have been taken into consideration. The full term for the acronym 'CMOS' has been included at the first instance for clarity. The term 'buried contact' has been amended to read 'local interconnect' because that interconnect is located on the substrate extending over the isolation structure to cover a periphery of the isolation structure as recited in claim 1, rather than buried under the substrate. The term without antecedent basis used in the original claim has been amended by the Applicant and are now in compliance with the provisions of 35 U.S.C. 112, 2nd paragraph. Applicants therefore respectfully request that this section 112 be withdrawn.

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The Office Action rejected claims 1-7 under 35 U.S.C. § 103(a) as being unpatentable over He et al. (USP 6,649,950, He hereinafter), Chen et al. (USP 6,392,263, Chen hereinafter) and Rhode (USP 6,740,915), all considered together.

To establish a prima facie case of obviousness under 35 U.S.C. § 103(a), the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Further, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Moreover, each of the three requirements must "be found in the prior art, and not be based on applicant's disclosure." See M.P.E.P. § 2143, 8th, February 2003. Applicants respectfully submit that He, Chen and Rhode, all considered together are legally deficient for the purpose of rendering claim 1 unpatentable.

The present invention teaches, among other things, 'a local interconnect, wherein a first end of the local interconnect is located on the substrate between the photodiode sensing region and the reset transistor and extended over the isolation structure to cover a periphery of the isolation structure and electrically connect the source region of the reset transistor, and wherein a second end of the local interconnect is located on the active region of the substrate to be used as a gate of a source follower transistor.' The photodiode sensing region (206 in Fig. 2) of the instant case is constituted with the doped regions 306,

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342 and the underlying substrate 300 (as shown in Figure 3F). Accordingly, as shown in Figure 3, the photosensing region is formed underneath one end of the local interconnect 324 (224 in Fig. 2), wherein the one end of the local interconnect 324 is disposed between the reset transistor 326 and the photodiode sensing region. Chen, on the other hand, teaches the reset transistor 322 disposed between the sensing transistor 332 and the photosensing region 300 (Figure 3). In other words, the photosensing region 300 of Chen is adjacent to the reset transistor 322, whereas the photosensing region of the instant case is adjacent to the one end of the local interconnect. Similarly, the photosensing region 103 of He is also formed adjacent to the reset transistor 107 (Figure 3).

The present invention also teaches that a local interconnect extends over the isolation structure to cover a periphery of the isolation structure and electrically connect the source region of the reset transistor, and the second end of the local contact is located on the active region of the substrate to be used as a gate of a source follower transistor. The Office contends that it is obvious to use the contact 320 in Rhodes to connect the source region 201 of the reset transistor in He to the gate of a source follower in Rhodes and Chen. Applicant respectfully disagrees. First of all, Rhodes fails to teach a photosensing region. Instead, a photogate 342 formed on the substrate is used for photo sensing. Second, the polysilicon layer 320 of Rhodes serves to connect the doped region 315 of the transfer transistor. There is no where in Rhodes that suggests an interconnect to electrically connect the source region of the reset transistor.

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Applicant respectfully submitted that the allegations in the Office Action are not supported in the cited references, and appear to have engaged in an impermissible hindsight reconstruction of the claims. Applicant further respectfully reminds the Office that it is not sufficient that the prior art 'teaches' the particular element of the invention, the prior art must also 'suggest the desirability, and thus the obviousness, of making the combination.' *ALCO Standard Corp. V. Tennessee valley Authority*, 808 F.2d 1490, 1498, 1 U.S.P.Q. 2d 1337, 1343 (Fed. Cir. 1986).

For at least these reasons the references, taken alone or combined, fail to teach or suggest each and every element recited in the claims, and the motivation to combine Chen, He and Rhode is also lacking, Applicant respectfully submits that all rejections have been rendered moot and/or accommodated and that the now pending claim 1 is in condition for allowance. Since claims 2-7 are dependent claims which further define the invention recited in claim 1, respectively, Applicants respectfully assert that these claims also are in condition for allowance. Thus, reconsideration and withdrawal of this rejection are respectively requested.

CONCLUSION

For at least the foregoing reasons, it is believed that the presently pending claims 1-7, 16 are in proper condition for allowance. If the Examiner believes that a telephone

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conference would expedite the examination of the above-identified patent application, the
Examiner is invited to call the undersigned.

Respectfully submitted,

Date :

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